

Appendix 3-J

ComSearch Licensed
Microwave Search and
Worst Case Fresnel Zone –
Alternative Analysis



Executive Summary – Wind Power GeoPlanner™

Licensed Microwave Search & Worse Case Fresnel Zone

Comsearch performed an analysis to evaluate the potential effects of six planned Cape Wind Associates, LLC wind turbine project areas to existing microwave telecom systems. Comsearch identified microwave paths that intersect the defined project areas, (see Figure 1 below) and calculated a Worse Case Fresnel Zone for each path.

Comsearch's Wind Power GeoPlanner™ provides a graphical representation of the microwave paths and provides supporting technical parameters, as maintained in Comsearch's corporate database. The microwave path data is overlaid on topographic basemaps. Comsearch identified 112 microwave paths that intersect the Cape Wind Associates, LLC project areas.

Comsearch then calculated Worse Case Fresnel Zones (WCFZ) for each microwave path in the project area (see Table 1 below). The mid-point of a full microwave path is the location where the widest (or worst) Fresnel zone occurs. Fresnel zones are calculated for each path using the following formula.

$$Rn \cong 17.3 \sqrt{\frac{n}{F GHz} \left(\frac{d1 d2}{d1 + d2} \right)}$$

The calculated WCFZ radius, giving the linear path an area or swath, buffers each microwave path in the project area. The distance unit is in meters and can be found in the column attribute "WCFZ." In general this is the XY area where the planned wind turbines should be avoided, if possible. These areas are shown in Figures 2, 3 and 4.

Four (4) microwave paths were identified (see Table 1) where a potential XY conflict exists with respect to eight (8) named turbines (see Table 2). The affected turbines are **turbine M-13 in Tuckernuck Shoal and turbines GR01, GR02, GR07, OR11, OR14, BL02, RD17 in Massachusetts Military Reservation**. This analysis took into consideration the following cleared turbines by project area: South Tuckernuck Island 131 of 131, Monomoy and Handkerchief Shoal 93 of 93, Reduced Horseshoe Shoal 115 of 115, New Bedford Harbor 25 of 25, Massachusetts Military Reservation **125** of 132, and Tuckernuck Shoal **130** of 131.

When wind turbines need to be located inside a WCFZ, Comsearch offers and recommends a detailed interference study, which considers the vertical Z-height clearance objectives. Please contact your sales representative, or Denise Finney (703) 726 – 5650 for assistance.

NOTE: The turbine blade diameter was given as 77m for the Massachusetts Military Reservation and 104m for the other 5 project areas. Client confirmation specified the horizontal coordinate datum as NAD83. Detailed study will check MMR towers 279 ft. total 406 ft. Offshore towers 246 ft. total 417 ft. for vertical clearance or blockage.



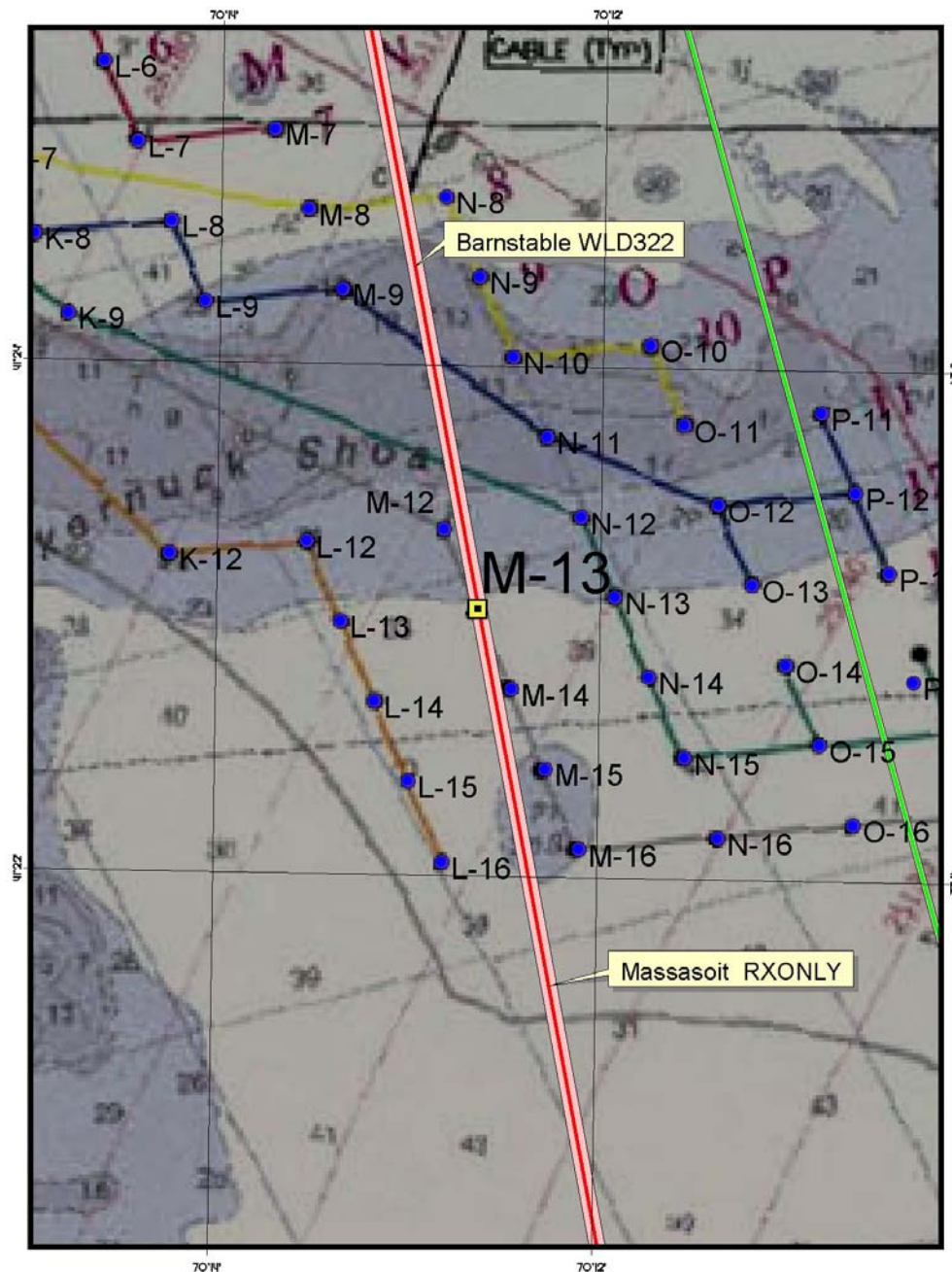


Figure 2 – Wind Power GeoPlanner™ & WCFZ 1 of 3

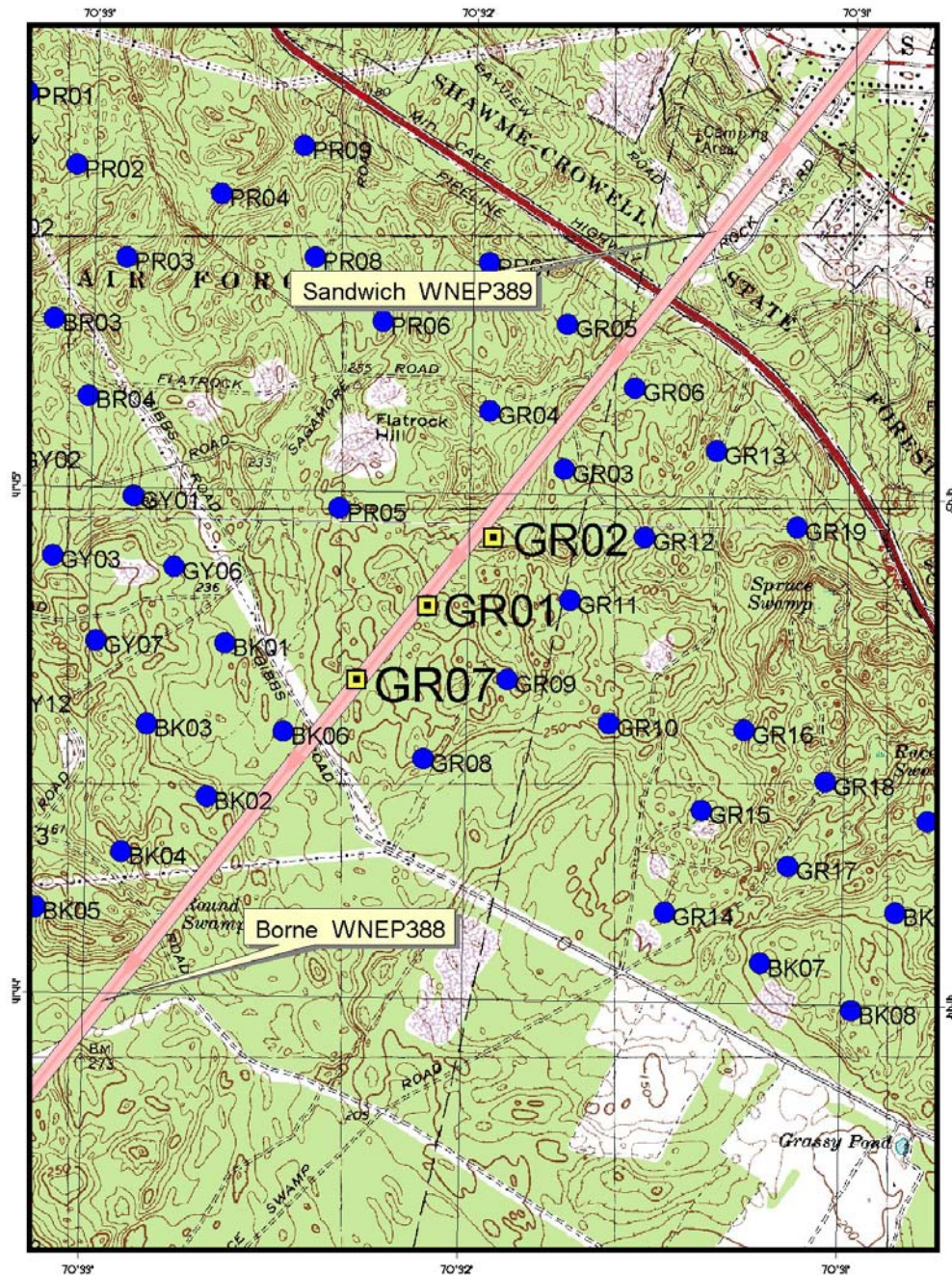


Figure 3 – Wind Power GeoPlanner™ & WCFZ 2 of 3

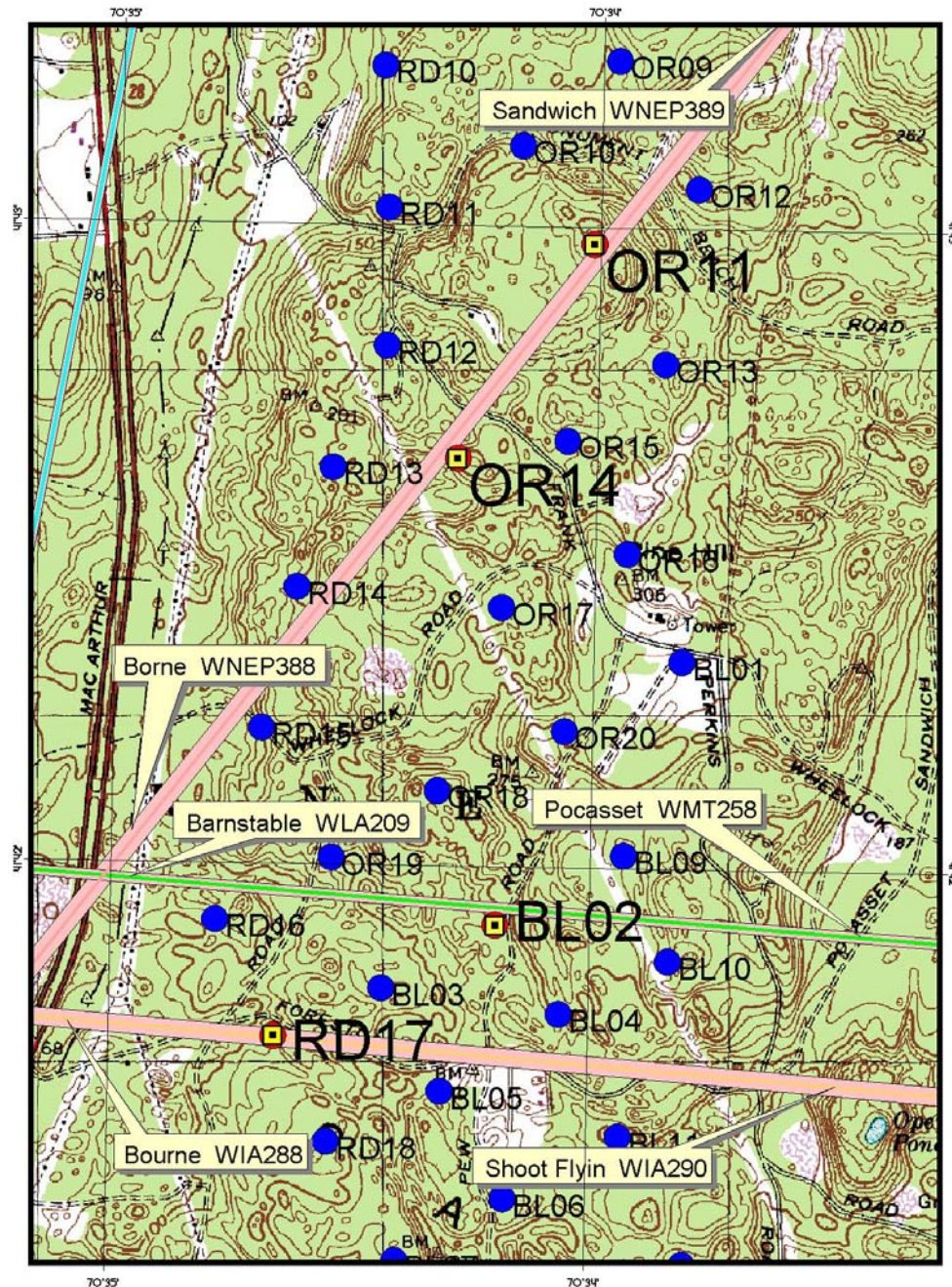


Figure 4 – Wind Power GeoPlanner™ & WCFZ 3 of 3



Cape Wind Associates, LLC Massachusetts Wind Park

SITE1	SITE2	CALL1	CALL2	BAND	COMPANY1	COMPANY2	WCFZ
POCASSET	BARNSTABLE	WMT258	WLA209	6.1 GHz	SW BELL MOBILE SYSTEMS LLC,MA	SOUTHWESTERN BELL MOBILE SYSTEMS LLC,MA	15.63
SANDWICH	BOURNE	WNEP389	WNEP388	940-960 MHz	SOUTHERN ENERGY CANAL LLC	SOUTHERN ENERGY CANAL LLC	28.68
SHOOT FLYIN	BOURNE	WIA290	WIA288	2.1 GHz	COMMONWEALTH ELECTRIC CO	COMMONWEALTH ELECTRIC COMPANY	26.36
BARNSTABLE R	MASSASOIT RD	WLD333	RXONLY	950 MHz	RADIO NANTUCKET INC	RADIO NANTUCKET INC	58.71
BARNSTABLE R	MASSASOIT RD	WLD332	RXONLY	950 MHz	RADIO NANTUCKET INC	RADIO NANTUCKET INC	58.71

Table 1 – Microwave GeoPlanner Links

NUM	WTG_LOC	LAT_DS	LON_DS	MASS_SP_N	MASS_SP_E	MLLW_FT	LIGHTING	FAA	LATITUDE	LONGITUDE
105	M-13	41 23 05.33869	70 12 38.12747	140346.00	1719837	33.0	Low	L-810	41.3848163028	-70.2105909639
17	RD17	41 41 47.68231	70 34 39.16870	253824.00	1619238	0.0	L-864 / L		41.6965784194	-70.5775468611
57	OR11	41 43 02.30691	70 34 00.66891	261375.20	1622164	0.0	L-810		41.7173074750	-70.5668524750
60	OR14	41 42 42.06169	70 34 17.29081	259327.00	1620902	0.0	L-810		41.7116838028	-70.5714696694
68	BL02	41 41 58.39850	70 34 11.63776	254906.90	1621327	0.0	L-810		41.6995551389	-70.5698993778
105	GR01	41 44 50.47877	70 32 06.31531	272319.60	1630841	0.0	L-810		41.7473552139	-70.5350875861
106	GR02	41 44 58.70478	70 31 56.01664	273151.90	1631622	0.0	L-810		41.7496402167	-70.5322268444
111	GR07	41 44 41.62325	70 32 17.31627	271423.50	1630007	0.0	L-810		41.7448953472	-70.5381434083

Table 2 – Identified Turbines